

AMENDMENT(S) TO THE SPECIFICATION

Page 1, Lines 1-2:

~~V-SHAPED DISC SCREEN AND METHOD OF CLASSIFYING MIXED RECYCLABLE MATERIALS INTO FOUR STREAMS~~ V-SHAPED DISC SCREEN

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This application is a continuation of U.S. patent application Serial No. 10/232,032 filed on August 28, 2002, now U.S. Patent No. 6,648,145 B2, which is the U.S. National Phase of pending PCT application Serial No. PCT/US02/18565 filed June 13, 2002, which itself is a continuation-in-part of U.S. application Serial No. 09/882,667 filed June 15, 2001, now 6,460,706 granted October 8, 2002. Said PCT application was published on December 27, 2002 under Publication No. WO 02/102526A1.

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In accordance with the present invention a disc screen apparatus has a generally V-shaped configuration with including a lowermost region that provides a trough and a pair of vertically inclined regions. Mixed recyclable materials deposited onto the trough are agitated and classified with different types of material falling through the discs of the trough, falling off one end of the trough, and falling off upper terminal ends of the inclined regions. ~~laterally inclined trough that receives the mixed recyclable materials. Broken glass falls downwardly between the discs of the lowermost region. Large articles, such as plastic milk bottles and soda pop containers, tumble down the trough and eventually fall off its lower end. Newspaper is conveyed upwardly over the terminal upper ends of a pair of vertically inclined regions of the disc screen apparatus. In the preferred embodiment, the frame of the disc screen apparatus incorporates ducting for connecting a source of pressurized air to one or more air manifolds that blow air toward the vertically inclined regions of the disc screen apparatus for helping the discs in these regions convey newspaper up the inclined regions and over their upper ends. The angle of inclination of the vertically inclined regions is~~

~~preferably adjustable with a lifting mechanism in order to optimize the efficiency of classification of the V-shaped disc screen apparatus.~~

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Referring to Fig. 1, a first embodiment of the present invention comprises a recycling apparatus 110 in the form of a trough-shaped disc screen 112 equipped with a pair of separate air manifolds 114 and 116. Referring to Fig. 2, the recycling apparatus 110 includes a frame 118 that rotatably supports a plurality of laterally extending shafts 22 that spin about laterally extending axes such as 120. The shafts 22 of the trough-shaped disc screen 112 are longitudinally spaced and are located at progressive heights to provide a generally V-shaped configuration as best seen in Fig. 1. The shaft that rotates about the axis 120 (Fig. 2) and the additional shafts to the left of axis 120 are rotated by a motor 122 through a drive linkage 124 in a counter-clockwise direction in Fig. 1. The shafts to the right of the axis 120 (Fig. 2) are rotated by another motor 126 (Fig. 1) via a drive linkage 128 to rotate the interleaved discs 30 on these shafts in a clockwise direction in Fig. 1. The drive linkages 124 and 128 preferably each include a plurality of sprockets as described hereafter which are mounted to the ends of the shafts 22 and a plurality of separate chains (not illustrated) entrained about these sprockets. Sprockets (not illustrated) are also mounted on separate gear reduction assemblies (not illustrated) driven by each of the motors 122 and 126. The shafts 22 could be driven directly or indirectly with gears, belts, chain drives, transmissions, electric motors, hydraulic motors, internal combustion engines, and various combinations of these drive means.

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Figs. 9A, 9B and 9C illustrate a third embodiment of the present invention in the form of a disc screen apparatus 200 having a frame 201 made of hollow welded steel box beams. A blower 202 is coupled to a rear laterally extending box beam 204a so that pressurized air is conveyed through longitudinally extending box beams 204b and 204c that form opposite sides of the disc screen apparatus 200. A plurality of longitudinally spaced air manifolds 206 extend laterally across a plurality of discs 208 for blowing air downwardly toward the discs 208 as indicated by the arrows in Figs. 9B and 9C. This helps convey a paper portion of a stream of mixed recyclable materials upwardly (left to right in Figs. 9A and 9B) along and on top of the discs 208. The normal inclination

of the disc screen apparatus 200 is not illustrated in Fig. 9B. The opposite ends of the air manifolds 206 are coupled to respective ones of the box beams 204b and 204c for receiving pressurized air therefrom. The air manifolds 206 preferably have a construction similar to those already described in conjunction with the recycling apparatus 110 of Figs. 1 and 2. Thus the disc screen apparatus 200 advantageously has ducting within the frame 201 for connecting the source of pressurized air in the form of the output duct of the blower 202 to the air manifolds 206. In the preferred embodiment this ducting is provided in the form of hollow box beams 204a, 204b and 204c. The axes of the shafts 210 that carry the discs 208 extend in a common plane in the disc screen apparatus 200, but it will be understood that the shafts could have other arrangements, such as the ~~V-screen~~ V-shaped arrangement illustrated in Fig. 1, for example.

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While ~~I~~ we have described several embodiments of a recycling apparatus in accordance with the present invention, variations and modifications thereof will occur to those skilled in the art. Therefore, the protection afforded ~~my~~ our invention should only be limited in accordance with the following claims.

Replacement Abstract Page attached.